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SIPDIS

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SUBJECT: WAITING FOR THE BIG ONE... IS ISTANBUL PREPARED FOR AN EARTHQUAKE?

1. (SBU) Summary: Despite continued public awareness about the likelihood of a major earthquake in the next 30 years, Istanbul remains ill-prepared for a major natural disaster. To the extent that municipal and state officials have begun to focus on this critical issue, the bulk of their attention has been on response efforts and not the more difficult mitigation efforts. End Summary.

Waiting for the Big One...

2. (U) Lying just off of the Northern Anatolian fault line, Istanbul (and its prior incarnations as Constantinople and Byzantium) has experienced major earthquakes every 100 to 150 years during its long history. The question is not whether an earthquake will occur, but rather when and how damaging it will be. A sequential westward progression of major earthquakes this century has led experts to believe that there is now a 65 percent probability of a major earthquake near Istanbul in the next 30 years. What troubles these experts and municipal authorities is the fact that modern Istanbul has grown in population from under a million to approximately 12 million in just two generations. Most of this vast expansion has taken place in the absence of sensible land-use planning and earthquake-resistant construction. These same problems led to the tens of thousands of deaths in the 1999 Kocaeli/Izmit earthquake, whereas similar magnitude earthquakes in developed countries with modern urban planning and construction cause relatively less damage (49 deaths in San Francisco/Oakland in 1989).

3. (U) Recent studies (including one funded by the American Red Cross) indicate that a major earthquake (7.5 on the Richter scale) in the immediate vicinity of Istanbul is expected to claim 40-50,000 lives and cost USD 11-12 billion in direct building damages (not including other property damage, secondary losses in productivity, and a million or more homeless). Severe shaking during the 1999 Izmit quake claimed almost a thousand lives and damaged over 23,000 buildings in the Istanbul neighborhood of Avcilar (over 80 km from the epicenter but consisting mostly of unstable land) and forced Istanbul residents to flee their houses and prompted many to sleep in the streets for days. Recent polls suggest that the psychological damage has endured: 58 percent of the city's residents are expecting a major earthquake, 29 percent have moved (or plan to move) to "safer" neighborhoods, and 40 percent say that only their work prevents them from leaving the city altogether. As recently as July 9, rumors of an impending earthquake panicked Istanbul residents until the Kandilli Observatory and municipal authorities debunked the scare.

Challenges to Disaster Preparedness

4. (U) WHO'S IN CHARGE?: The problems and challenges involved in preparing for an earthquake are considerable. They begin with the question of authority. Outdated laws from the 1950s (when Turkey was predominantly rural) formally delegate disaster response to the national government and to its representatives around the country (i.e., state-appointed governors). The Civil Defense Directorate of the Ministry of Interior employs 2000 people around the country, but their mandate and training deal primarily with the Cold War threat of nuclear attack, not disaster preparedness. Although an Emergency Management Agency was created several years ago, its role vis-a-vis other disaster management agencies remains undefined. The scale of the problem in large urban areas, moreover, is far beyond the capacity of local governors and has been unable to attract sufficient resources from a government preoccupied with an ongoing economic crisis. In the absence of a national response on this issue of critical concern, the Istanbul municipal authorities have stepped into the vacuum, working closely with the governor's office and local organizations to coordinate unified earthquake preparations. But tension between municipal and state authorities has created major problems, obstacles, and delays in advancing the city's level of preparedness. Schools, hospitals, and cultural heritage fall directly under state, not municipal, control.

15. (U) RESPONSE VERSUS MITIGATION: Earthquake preparations fall into two general categories: response and mitigation. Major steps have already been taken with regard to upgrading and reinforcing the city's ability to respond to an earthquake (training rescue teams and firefighters, pre-positioning supplies), but the much larger and more expensive mitigation efforts have only just begun. The Istanbul Municipality, Turkish Red Crescent (with American Red Cross assistance), and others have upgraded their response preparations. Prof. Nuray Aydinoglu, head of the Kandilli Observatory (Turkey's premier earthquake research institute) told us that the response to the June 2003 Bingol earthquake showed that the response situation had improved considerably in the last five years, but added that mitigation efforts were few and unorganized. Nasuh Mahruki, Chairman of AKUT (a search-and-rescue NGO that achieved national fame for their work after the 1999 Izmit earthquake), sardonically confirmed to us that the city and other organizations seem to have focused on the "glamorous" response preparations at the expense of the more important preventive mitigation efforts. Another earthquake engineer living in Bursa noted a similar tendency on the part of municipal authorities there. Even response preparedness has focused disproportionately on "heavy" search and rescue (using machinery to save people in collapsed buildings) instead of "light" search and rescue (where neighbors and local communities pull victims from rubble), which typically accounts for 80 percent of those rescued.

16. (U) BUILDING CODES, TESTING, INSURANCE: Ironically, Turkey adopted modern building codes (judged to have up-to-date seismic design provisions by the USGS) shortly before the devastating Izmit earthquake. The new code, the product of five years of work by expert commissions, was prompted by the 1992 Erzincan earthquake and largely tracked advances in U.S. codes. Aydinoglu, who was also the primary author of the new code, told us that he is primarily concerned with his failure since the 1980s to get Turkey to strengthen the legislation regarding testing and enforcement of building codes. Currently, the professional qualification requirements for those testing designs and examining buildings are extremely low. An independent earthquake engineer told us separately that the software that is used by architects to design earthquake-resistant buildings is outdated and that engineers testing the designs on behalf of the authorities use the same software. Although earthquake insurance is mandatory, only 25 percent of buildings are believed to be insured and insurance companies have yet to develop any expertise or experience examining buildings.

17. (U) UNCHECKED AND UNPLANNED GROWTH: Despite the persistent problems in design, however, the biggest problems for municipal authorities are caused by poor land-use planning and inferior construction. Both problems have been exacerbated by the massive and largely uncontrolled waves of rural-to-urban migration that have made Istanbul Europe's largest city at approximately 12 million people. Municipal authorities have been unable to cope with the flood of immigrants, many of whom began their new lives in Istanbul building unlicensed squatter (gecekondu, literally "landed by night") settlements, often in "forest" or "state" lands. Although a series of property amnesties has legalized many of these buildings and neighborhoods, between 60 to 65 percent of Istanbul's 1 million or so buildings were built without proper construction permits (i.e., not according to the approved plan or without a permit altogether). Government plans for yet another property amnesty could spur another wave of illegal construction and vastly complicate municipal efforts to prepare for an earthquake (see septel) (Embassy Comment: At the same time, these plans may be driven by solid political reasons. End Comment).

18. (U) EARTHQUAKE VULNERABILITY: One of the major challenges in Istanbul relates to the construction style and lack of building expertise. Due to the ready availability of affordable wood, most residences in California are built on wooden frames, making them more ductile and earthquake-resistant (although they are also more susceptible to fires). Due to a scarcity of wood, most Turkish residences are built on relatively more static reinforced concrete frames. Furthermore, a lack of knowledge and expertise regarding the proper use of transverse bars, correctly-mixed concrete, and techniques to minimize moisture and corrosion have made many of these structures fundamentally unsound. These simple problems have greatly increased Turkey's vulnerability to earthquake damage. Statistics from the losses in past earthquakes indicate that for every life lost in California, 10 are lost in similar earthquakes in Japan, and 100 in Turkey.

¶9. (U) CROOKED CONTRACTORS AND DEATH-BY-"PANCAKE": Endemic corruption on the part of both building contractors and municipal authorities has given rise to thousands of sub-standard buildings that could become literal "death traps" in the event of a major earthquake. According to one expert, authorities simply are not sufficiently well trained and paid to be able to resist corruption and properly enforce building codes. The most common pattern of residential construction has been for self-financing contractors to conclude deals with land owners for permission to build in return for handing over a specified number of the future building's apartments. With municipal authorities already on the take to overlook the illegal construction, the contractors have little incentive to comply with costly building codes. Instead, they cut corners, using inferior materials and adding on unstable floors, to increase their overall profits. It is these reinforced concrete, 4- to 10-story, static or non-ductile apartment buildings that are at the greatest risk of damage or even "pancake"-style collapse that has claimed the most lives in previous earthquakes. Studies predict that a major earthquake in Istanbul could result in between 5,000 and 6,000 such pancaked buildings.

¶10. (U) PUBLIC FACILITIES: In the event of an earthquake, the safety of schools, hospitals, and other government buildings will be critical to minimizing damages and coordinating assistance. These facilities, too, have yet to be thoroughly examined and reinforced. One World Bank-funded study examined 26 hospitals and determined that 86 percent of them needed major repairs and reinforcements. The former Director of the Kandilli Observatory and the then-Minister of Health got into a nasty public quarrel over the failure to follow through on the needed repairs. The Ministry of Education inspected the local schools, evacuated a few of the most unsafe, and is engaged in reinforcing many others. An official from a major teachers' union told us, however, that the examinations were cursory at best. Some cultural heritage sites and museums have also begun to prepare for an earthquake, but there is very little public funding available for this work. The director of Topkapi Palace, for example, has obtained corporate sponsorship and has implemented a program, but the Hagia Sophia (which is expected to suffer serious damage in a major earthquake) has yet to do more than study the issue.

Mitigation: Step By Small Step...

¶11. (U) Despite the challenges, in addition to the considerable work and organization that has been done on disaster response preparations, municipal authorities have also taken early steps to launch more comprehensive mitigation programs. After overcoming obstacles and delays imposed by state authorities, the city conducted a loss estimation study and a geological survey with Japanese assistance to identify the areas and neighborhoods in Istanbul that are at greatest risk in an earthquake. A consortium of universities, including Bogazici, Istanbul Technical, Yildiz Technical, and Middle East Technical Universities, is set to complete a major study of economic, legal, technical, and sociological factors to determine the outlines for a mitigation project that will put all of Istanbul's buildings through a screening process to identify those that are at highest risk. Istanbul officials estimate that the process will take about 10 years and cost as much as USD 10 billion. A pilot project is due to begin shortly in the Zeytinburnu district of Istanbul. Separately, a contract has also been awarded for retrofitting Istanbul's bridges. Perhaps the most encouraging steps with regard to mitigation have been taken by individuals sensitized to the dangers by recent earthquakes. Although municipal authorities are still powerless to strictly enforce land-use plans and building codes, several earthquake experts have noted that individual land-owners and contractors are much less likely now to build in unsafe neighborhoods or to cut corners in construction.

Much Left to Do....

¶12. (U) Although much of what remains to be done will take time and resources, there is also much that can be done at relatively low cost. The American head of a 3-year old USAID/OFDA disaster awareness project believes that one of the key issues is to educate renters, property owners, and builders on how to construct earthquake-safe buildings. Simple measures and techniques that cost no more than 10 percent of the construction cost could make new buildings much safer. Another potentially productive area of education is non-structural mitigation efforts (properly fastening shelves and objects within buildings). Fifty percent of earthquake injuries and 10 percent of deaths are attributable to non-structural causes. The USAID/OFDA project (with only USD 530,000) has implemented a sustainable basic disaster awareness program for teachers and students, but has been

unable to fully address these other critical education and awareness problems.

Comment

113. (U) Because of the terrifying enormity of its scale and cost, preparing for a major earthquake is the proverbial elephant in the room that nobody in Istanbul really wants to talk about. While the city does seem to have finally acknowledged its presence, the bulk of its early efforts have focused on the relatively easier and more glamorous task of response preparations instead of the more difficult and costly mitigation efforts. Bottom line: Istanbul remains woefully unprepared for an earthquake. Inshallah (God Willing), there will be enough time to advance major mitigation and educational efforts before the big one hits.
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